

Applicants : Roy W. Kuennen et al  
Appl. No. : 10/767,035  
Page No. : 8

---

### REMARKS

Applicants respectfully request reconsideration of the application identified above. Claims 32, 34-42 and 71 are pending in the application; claims 32, 37, 41 and 71 are presently amended; and claim 33 is presently cancelled. The rejections as conceivably applied to the pending claims are respectfully traversed.

#### I. Specification Objections

As originally presented: (a) the abstract of the disclosure was objected to for being too long; and (b) the curvature peak (claim 32) and dislodging pin (claim 41) were objected to for not being recited in the written description.

First, Applicants have amended the abstract of the disclosure to comply with M.P.E.P. 608.01(b). Accordingly, Applicants submit it is now in proper form.

Second, Applicants have described original Figs. 21B and 22 in the written description so that the curvature peak (claim 32), shown in the original figures, is now explicitly included in the written description. Applicants also have provided a Replacement Sheet in compliance with 37 C.F.R. 1.121(d) to call out the curvature peak with the reference numeral “431” in Figs. 21B and 22.

Finally, claim 41 has been amended to recite “a button”—rather than a dislodging pin—which is supported by the disclosure in at least Paragraphs 0092 and 0126 of the Published Application.

## II. Rejection Under 35 U.S.C. §112, Second Paragraph

As originally presented, claim 37 was rejected under 35 U.S.C. §112, Second Paragraph, as being indefinite because, “the lower portion” lacked antecedent basis. Claims 38 and 39 were rejected because they depended from claim 37. The “lower portion” has been amended to “a lower portion.” Therefore, it is respectfully submitted that the §112 rejection of claim 37, as well as the ancillary rejection of dependent claims 38-39, is overcome.

## III. Prior Art Rejections

### A. Rejections Based on Glazman

As previously presented, claims 32 and 71 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,635,133 to Glazman (“Glazman”).

Glazman discloses a UV water treatment system. The system includes: a housing/conduit, which connects an inlet conduit 20 to an outlet conduit 22; a bulb assembly 50; and two parabolic reflectors 40. The vertexes of the parabolic reflectors 40 define apertures 42 that allow water to flow continuously through the reflectors 40, around the bulbs 50, and out the outlet conduit 22. The bulbs 50 are oriented within the parabolic reflector *perpendicular* to the housing/conduit so that the UV light generated by the bulbs 50 are reflected by reflectors 40 as beams 32 that are directed parallel to the fluid flow 11 in the conduit 22. Glazman, Col. 7, Lns. 25-33. These parallel beams 32 maximize UV absorption and uniformly radiate microorganisms in the fluid flow 11 in the conduit 22. Glazman, Col. 7, Lns. 34-39.

Applicants respectfully submit that Glazman does not anticipate amended independent claims 32 and 71 because it fails to disclose: (a) a conduit and a bulb including

longitudinal axes that are substantially parallel to one another; or (b) a terminal curvature peak that projects toward a bulb and that is immediately adjacent the bulb. In contrast, the Glazman bulbs 50 include longitudinal axes that are *perpendicular* to the fluid flow and the housing/conduit. Further, the Glazman reflectors include no terminal curvature peak like that recited in the amended claims.

In view of the amended claims and above arguments, Applicants respectfully submit that the rejections based on Glazman are improper and should be withdrawn.

B. Rejections Based on Lew

As previously presented, claims 32, 36-37, 40 and 71 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,694,179 to Lew (“Lew”).

Lew discloses a UV water treatment system including UV bulbs 34, 35, and 36 and a reflector shell 37. As shown in Fig. 4, the Lew system, also includes a transparent, watertight tube 32 separates the UV bulbs 34, 35 and 36 from the liquid in that tube 32. The reflector shell 37 surrounding the UV bulbs 34, 35, and 37 includes a *smooth, uninterrupted interior surface*, as shown in Fig. 4. The parabolic reflector structures and each of the bulbs 34, 35 and 36 transition cleanly to one another, with no interruption or structure projecting from the smooth interior reflector surface. Applicants respectfully submit that Lew fails to anticipate amended independent claims 32 and 71 because Lew does not disclose diminishing radii of curvature that terminate at a terminal curvature peak that projects toward and immediately adjacent a bulb. In contrast, the smooth Lew reflector tube 32 is void of any structure projecting

toward a bulb, let alone a curvature peak. Instead, the interior of the Lew reflector is smooth and featureless to uniformly irradiate the annular compartment 38. Lew, Col. 4, Lns. 9-14.

In view of the amended claims and arguments above, Applicants respectfully submit that the rejections based on Lew are improper and should be withdrawn.

Claim 36-37 and 40 depend from independent claim 32, and are therefore patentable for at least the reasons noted above in connection with that claim.

C. Rejections Based on Barnes in view of Matschke

As previously presented, claims 32, 34-35, 37, 40, 42 and 71 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 3,122,492 to Barnes (“Barnes”) in view of U.S. Patent 5,536,395 to Matschke (“Matschke”).

Barnes discloses a method of producing silicon tetrachloride by irradiating chlorine gas with UV light. With reference to Fig. 1, Barnes provides irradiation by arranging parabolic reflector structures 4 or 5 to focus UV rays on a transparent tube 1. The UV bulbs 6 and 7 are positioned at the foci of the reflectors. The transparent tube 1 is positioned at the intersection of the reflectors 4 and 5.

Matschke discloses germicidal UV chambers in an air duct. Each UV chamber 10 includes a housing 100 having an inlet 21, and outlet 22. Each chamber 10 takes the form of one or more ellipsoid sections which focus energy uniformly throughout the chamber 10.

Applicants respectfully submit that even a hypothetical combination of Barnes and Matschke fails to disclose, teach or suggest: (a) diminishing radii of curvature that terminate at terminal curvature peak that projects toward a bulb; or (b) a terminal curvature peak that is

immediately adjacent a bulb. In contrast, Barnes, which apparently is cited for its reflectors and reflector positioning, shows a transparent conduit—rather than a bulb—positioned adjacent the pointed intersection of the reflectors. Further, the UV bulbs 6 and 7 are positioned at the foci of the parabolic reflectors. Barnes explains that this precise bulb positioning “enables a reaction tube 1 of greater diameter to be employed.” Barnes, Col. 2, Lns. 1-5. Thus, not only do the references fail to disclose, teach or suggest the features of the amended claims, Barnes teaches away from having a feature where the curvature peak *projects toward and is immediately adjacent the bulb*. Matschke does not make up for the deficiencies of Barnes.

In view of the amended claims and arguments above, Applicants respectfully submit that the rejections based on Barnes and Matschke alone or in combination are improper and should be withdrawn.

Claims 34-35, 37, 40 and 42 depend from amended independent claim 32 and are therefore allowable for at least the reasons noted above in connection with that claim.

D. Rejections Based on Lew in view of Kool

As originally presented, claims 38, 39 and 41 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lew in view of U.S. Patent 6,245,229 to Kool (“Kool”). Applicants submit that Kool fails to make up for the deficiencies of Lew noted above in connection with independent claim 32. Therefore, claims 38, 39 and 41, which depend from amended independent claim 32, are allowable for at least the reasons noted above in connection with that claim.

Applicants : Roy W. Kuennen et al  
Appl. No. : 10/767,035  
Page No. : 13

---

Accordingly, Applicants respectfully submit that the rejections based on Lew in view of Kool are improper and should be withdrawn.

### CONCLUSION

In view of the above amendments and Remarks, Applicants respectfully submit that the present application is in condition for allowance. A notice to that effect is earnestly and respectfully requested. If the examiner believes that it would be helpful to resolve any outstanding issues, he is invited to contact the undersigned.

Respectfully submitted,

ROY W. KUENNEN ET AL

By: Warner Norcross & Judd LLP

/Gregory P. Bondarenko/  
Gregory P. Bondarenko  
Registration No. 44,547  
900 Fifth Third Center  
111 Lyon Street, N.W.  
Grand Rapids, MI 49503-2487  
(616) 752-2420